WHAT IS CLAIMED IS:

1. A solid-state imaging device, comprising:

a semiconductor substrate;

a light shielding section having an aperture for partially shielding light incident on a surface of the semiconductor substrate;

a light reception section for converting the light which is incident on the surface of the semiconductor substrate through the aperture to an electric charge; and

a passivation section having a substantially flat top surface and overlying the light shielding section, the light reception section and the aperture.

2. A solid-state imaging device according to claim 1, wherein the passivation section comprises at least a silicon nitride-based monolayer film.

3. A solid-state imaging device according to claim 1, further comprising an insulation section having a substantially flat top surface which is interposed between the passivation section and the light shielding section.

4. A solid-state imaging device according to claim 3, wherein the insulation section comprises at least a silicon oxide-based monolayer film.

5. A method for producing a solid-state imaging device, wherein the device comprises:

a semiconductor substrate;

a light shielding section having an aperture for partially shielding light incident on a surface of the semiconductor substrate;

a light reception section for converting the light which is incident on the surface of the semiconductor substrate through the aperture to an electric charge; and

a passivation section having a substantially flat top surface and overlying the light shielding section, the light reception section and the aperture, wherein the method comprises the steps of:

forming a thin film used for forming the passivation section on the light shielding section and the aperture; and

flattening a surface of the thin film to form the passivation section by chemical machine polishing.

6. A method for producing a solid-state imaging device,

wherein the device comprises:

a semiconductor substrate;

a light shielding section having an aperture for partially shielding light incident on a surface of the semiconductor substrate;

a light reception section for converting the light which is incident on the surface of the semiconductor substrate through the aperture to an electric charge; and

a passivation section having a substantially flat top surface and overlying the light shielding section, the light reception section and the aperture, wherein the method comprises the steps of:

forming a thin film used for forming the passivation section on the light shielding section;

applying an SOG film to the thin film used for forming the passivation section; and

performing an etchback technique under a condition that a selective ratio of the SOG film to the thin film used for forming the passivation section is about 1:1.

7. A method for producing a solid-state imaging device, wherein the device comprises:

a semiconductor substrate;

a light shielding section having an aperture for shielding light incident on a surface of the semiconductor substrate;

a light reception section for converting the light which is incident on the surface of the semiconductor substrate through the aperture to an electric charge;

a passivation section having a substantially flat top surface and overlying the light shielding section, the light reception section and the aperture; and

an insulation section having a substantially flat top surface which is interposed between the passivation section and the light shielding section, wherein the method comprises the steps of:

forming the insulation section on the light shielding section;

flattening a surface of the insulation section by chemical machine polishing; and

forming the passivation section so as to have the substantially flat top surface by depositing a material used for forming the passivation section on the insulation section.

8. A method for producing a solid-state imaging device, wherein the device comprises:

a semiconductor substrate;

a light shielding section having an aperture for partially shielding light incident on an surface of the semiconductor substrate;

a light reception section for converting the light which is incident on the surface of the semiconductor substrate through the aperture to an electric charge;

a passivation section having a substantially flat top surface and overlying the light shielding section, a light reception section and the aperture; and

an insulation section having a substantially flat top surface which is interposed between the passivation section and the light shielding section, wherein the method comprises the steps of:

forming the insulation section so as to have the substantially flat top surface by applying an SOG film to the light shielding section and the aperture; and

forming the passivation section so as to have the substantially flat top surface by depositing a material used for forming the passivation section on the insulation section.

add A1 Cont

add A2